

MORKRUM MULTIPLEX PRINTING TELEGRAPH SYSTEM

GENERAL

This supplement forms a part of specification 111 and 112, all issues to date, and covers changes in the Main Line Relay Tongue Circuit and Main Line Relay Vibrating Circuit.

THEORY OF NEW CIRCUITS

In the old main line relay circuit, see Fig. 1, the main line relay tongue is connected directly to the printer relay coils and at the same time to the corrector cam contacts. The latter fact makes the current through the printer relay coils vary under different conditions of the corrector circuit, owing to the diversion of the impulses from the main line relay tongue.

In the new circuit an additional relay is introduced, called the Corrector Control Relay. The coils of this relay are in series with the printer relay coils and are connected so that its armature movement corresponds with the armature movement of the main line relay. Its contacts are connected to plus and minus 110 volts local battery respectively and the tongue to the corrector cam contacts. Thus, the corrector cam contacts are connected to plus or minus battery, depending upon which contact the line relay and the corrector control relay tongue is resting. With the corrector cam circuits removed from the main line relay tongue, the current through the new corrector control relay and printer relay coil does not vary and the result is a steadier action of the correction and selecting circuits.

The present printer relay is of the Wheatstone type. Owing to the better operating characteristics in this local circuit, our RY20 relay (W.E.215-A) is used for the printer and corrector control relay.

The present single pole vibrating circuit of the main line relay is changed to double pole operation.

PARTS REQUIRED FOR MAKING CHANGES

On table top: 2 RY20 (215-A) relays
2 #6828 relay mounting plates
2 #6827 relay connecting blocks
8 #33-76 mounting plate screws
1 #77398 relay terminal cover
4 #33-73 terminal cover mounting screws

In panel box: 1 #4165 D.P.S.T. knife switch
2 #33-252 switch mounting screws
2 #34-41 mounting screw nuts
1 #6703 resistance unit, 7500 ohms
1 #123-360 resistance unit, 1000 ohms
2 #125-194 resistance units, 250 ohms
1 #4824 Condenser, 1 M.F.

One Wheatstone relay (former printer relay) and slip connection frame will be removed from table top.

Two 3000 ohm resistance units, two 1500 ohm resistance units, and one 2 M.F. condenser will be removed from panel box.

MOUNTING OF RY20 RELAYS

The added RY20 relays are mounted in a vertical position with connecting block reversed from that shown in W.D. #610. In order to make the direction of operation uniform with other relays of the set the contact connected to terminal 4 of the relay is designated the spacing contact and that connected to terminal 5 the marking contact. Reference to the direction of tongue movement in W.D. #610 would then read "against spacing contact" instead of "against marking contact" as indicated.

METHOD OF MAKING CHANGES

Refer to Figures 2 and 3. Run four wires from top of table to panel box, leaving sufficient length at each end to make connections as shown in Figure 3. The added wires should be laced to the cable.

Tag these four wires at both ends for identification as "Added Wires #1, 2, 3 and 4".

Changes on top of table:

Remove wire on terminal #2 of present printer relay and tag "Corrector Control #2".

Remove wire on terminal #7 of present printer relay and tag "Printer Relay #6".

Remove wire on terminal #9 of present printer relay and tag "Printer Relay #5".

Remove wire on terminal #10 of present printer relay and tag "Printer Relay #1".

Remove wire on terminal #11 of present printer relay and tag "Printer Relay #4".

Take off the slip connection frame of the present printer relay and cut table top as shown in Fig. 2 and fit in mounting plates and connection blocks for two RY20 relays as shown.

At the main line relay slip connection frame, remove the wire running from terminal #10 to receiving distributor and splice on a short length sufficient to reach to corrector control relay position. Tag this wire "Corrector Control #1". Remove strap between terminals #5 and #10. Connect "Added Wire #1" to terminal #5 (strapped to #4). Connect "Added Wire #2" to terminal #10.

All wires from corrector control relay and printer relay should be formed separately and brought out through opening in table, preparatory to connecting to the relay connecting blocks.

Connect "Added Wire #3" to corrector control relay terminal #4. Connect "Added Wire #4" to corrector control relay terminal #5. Run one wire from corrector control relay terminal #6 to printer relay terminal #2.

Connect other wires to corrector control relay and printer relay as indicated on tags.

Strap terminals #3 and #7 on both relays. This completes the wiring changes on top of table.

Changes in the panel box:-

Remove strap that runs from lower terminal of the right hand resistance marked "250 Ohms Line Relay Contact" to both the resistance marked "800 Ohms Corrector Coil" and the resistance marked "250 Ohms Printer Relay Tongue". Also remove strap that runs from lower terminal of the left hand resistance marked "250 Ohms Line Relay Contact" to both the resistance marked "1000 Ohms Sounder" and the resistance marked "1500 Ohms Holding Relay Winding". Add strap between lower terminals of resistance marked "1500 Ohms Holding Relay Winding" and resistance marked "1000 Ohms Sounder". Add strap between lower terminals of resistance marked "250 Ohms Printer Relay Tongue" and resistance marked "800 Ohms Corrector Coil". See Figure 3.

Mount one #4165 double pole single throw knife switch, called Gulstad Switch, in the panel box as shown in Figure 2.

Run wires from the 110 volt side of the line battery switch to similar terminals of the added switch. Run wires from blades of added switch to the lower terminals of the resistances marked "250 Ohms Line Relay Contact", connecting positive wire to right block and negative wire to left block.

Remove all wires from upper and lower terminals of the two present resistances marked "1500 Ohms Line Relay". The wire

removed from the upper terminal of the right hand block should be connected to the top terminal of the next block to the right in order to preserve present continuity of positive battery feed to the lower row of resistance blocks. The other wires are not used and should be disconnected at both ends and removed.

Connect "Added Wire #1" to upper terminal and "Added Wire #2" to lower terminal of left hand block (marked "B" - Figure 3). Remove present 1500 ohms resistance and replace with 1000 ohms. Mark this block "1000 Ohms Line Relay Tongue".

Strap lower terminal of present resistance marked "4000 Ohms Line Relay" to lower terminal of present right hand resistance marked "1500 Ohms Line Relay", and connect to ground on fourth terminal block from left, top right hand terminal marked "G". Remove present resistance marked "4000 Ohms Line Relay" and replace with 7500 ohms, changing designation of block to correspond.

Remove strap between lower terminals of resistances marked "3000 Ohms Printer Relay". Remove wire from lower terminal of right hand block and splice on a sufficient length to connect to upper terminal of present right hand resistance "1500 Ohms Line Relay (marked "C" - Figure 3). Remove the 1500 ohms resistance and replace with 4000 ohms, changing designation to read "4000 Ohms Secondary Relays".

Connect "Added Wire #3" to lower terminal of present left hand resistance marked "3000 Ohms Printer Relay" and "Added Wire #4" to lower terminal of the right hand resistance. Replace present 3000 ohms resistances with 250 ohms resistances and change designations to read "250 Ohms Corrector Control Relay". Positive potential should be on the left and negative on the right.

Remove present 2 M.F. condenser marked "Line Relay Condenser" (left of four condenser positions) and replace with 1 M.F. This completes the wiring changes.

TELETYPE CORPORATION

J.C.P. 12-5-29.

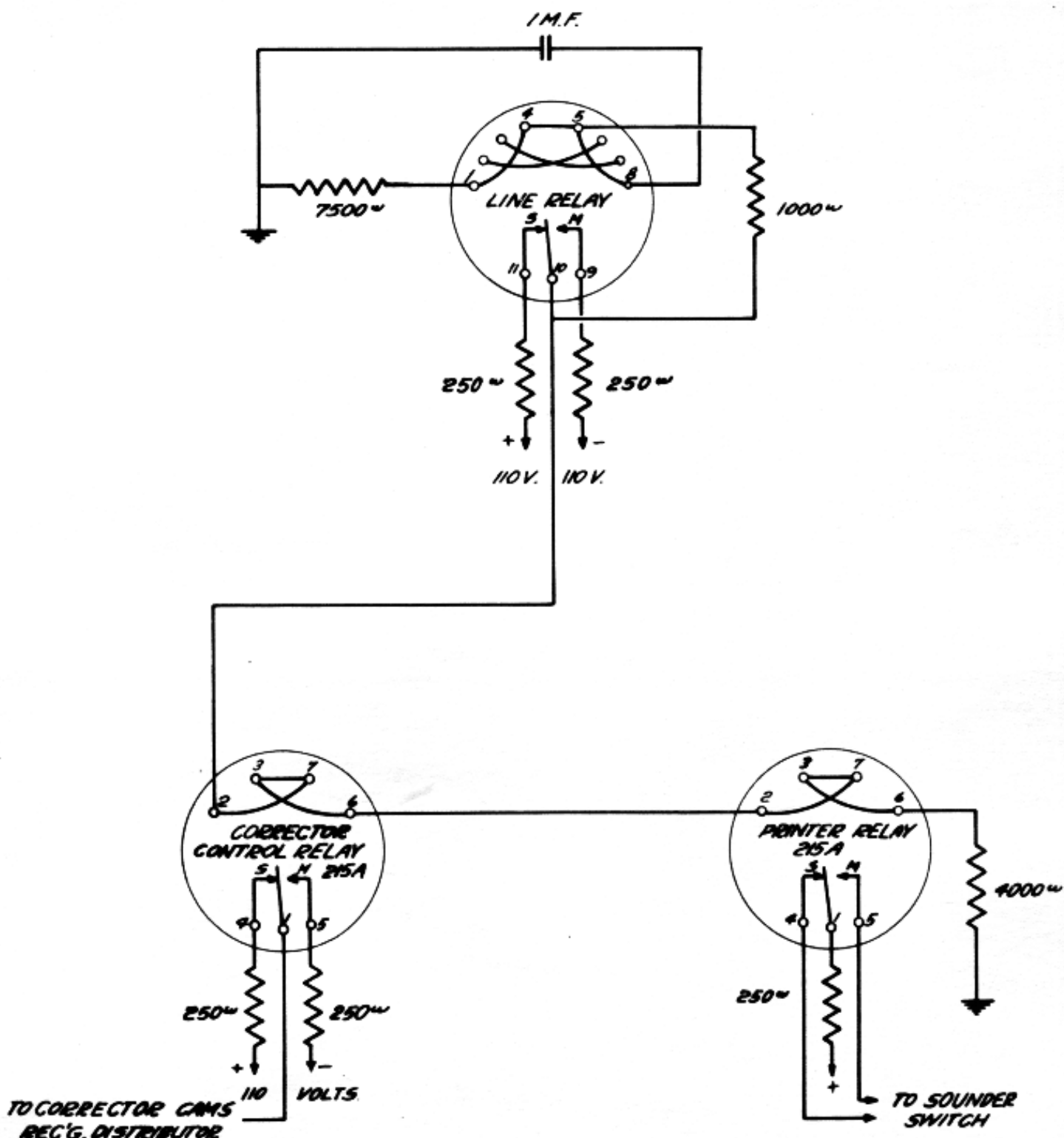
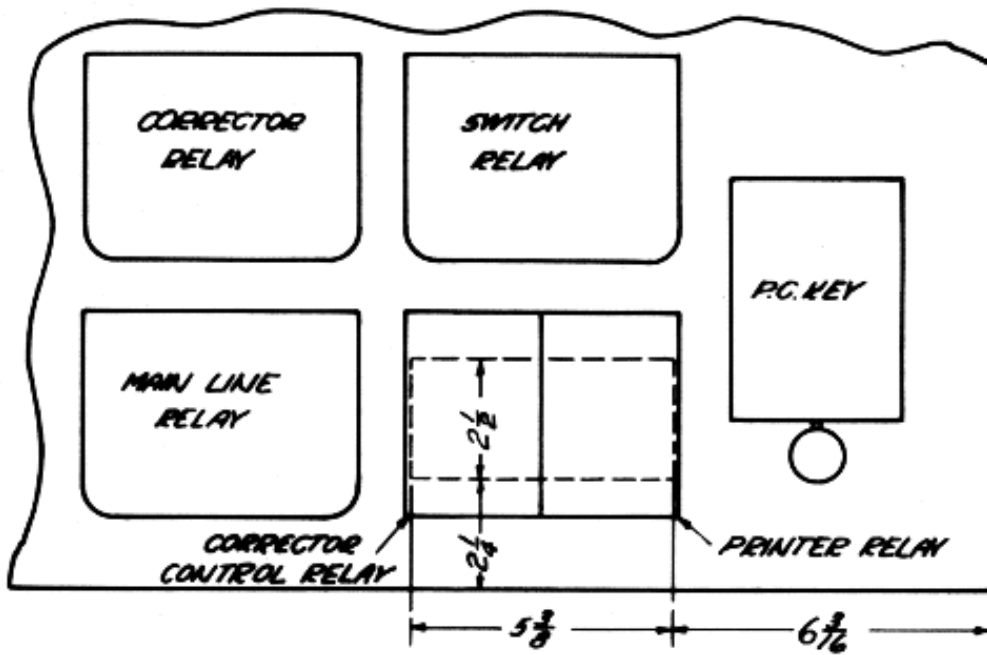
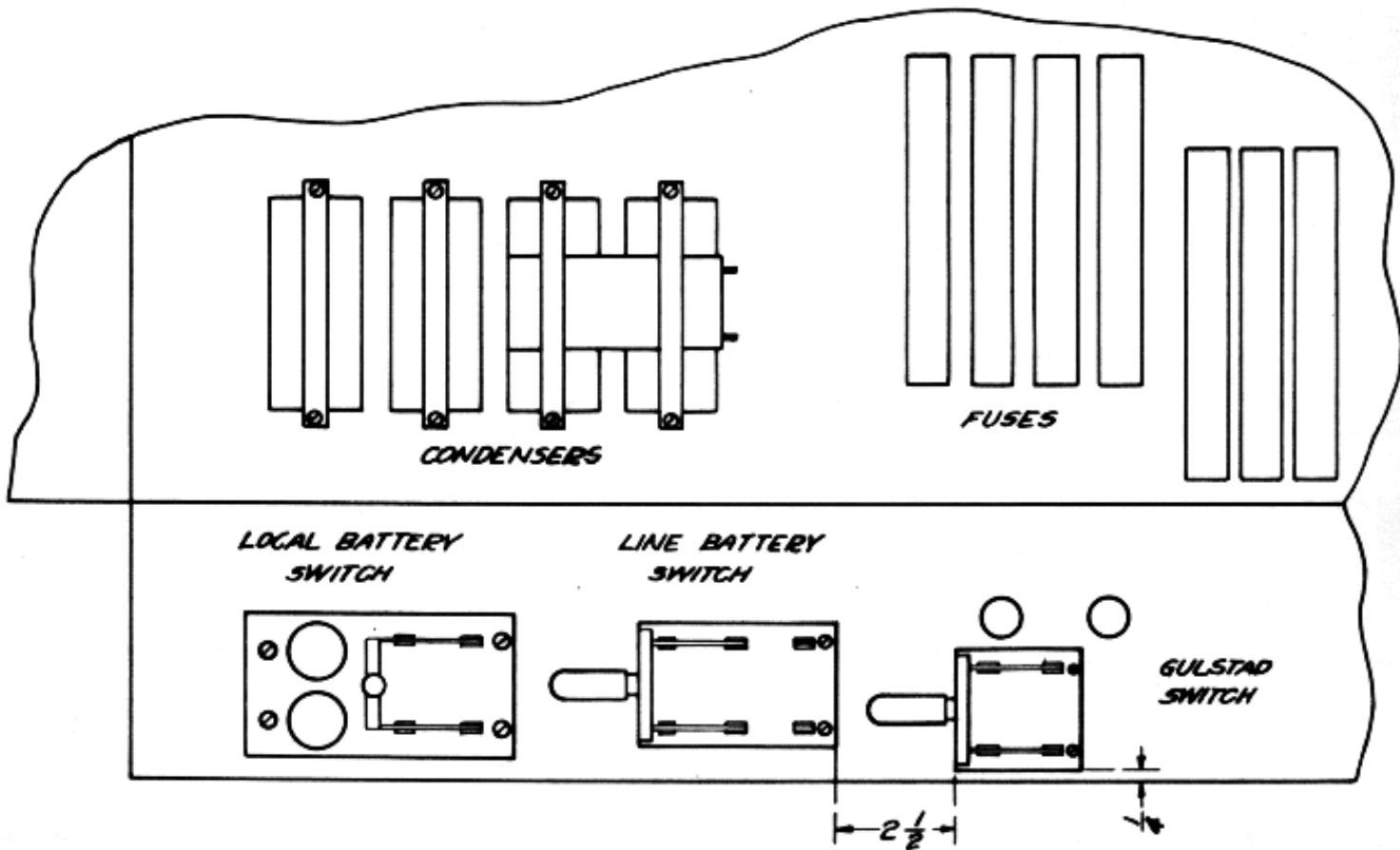


FIGURE 1



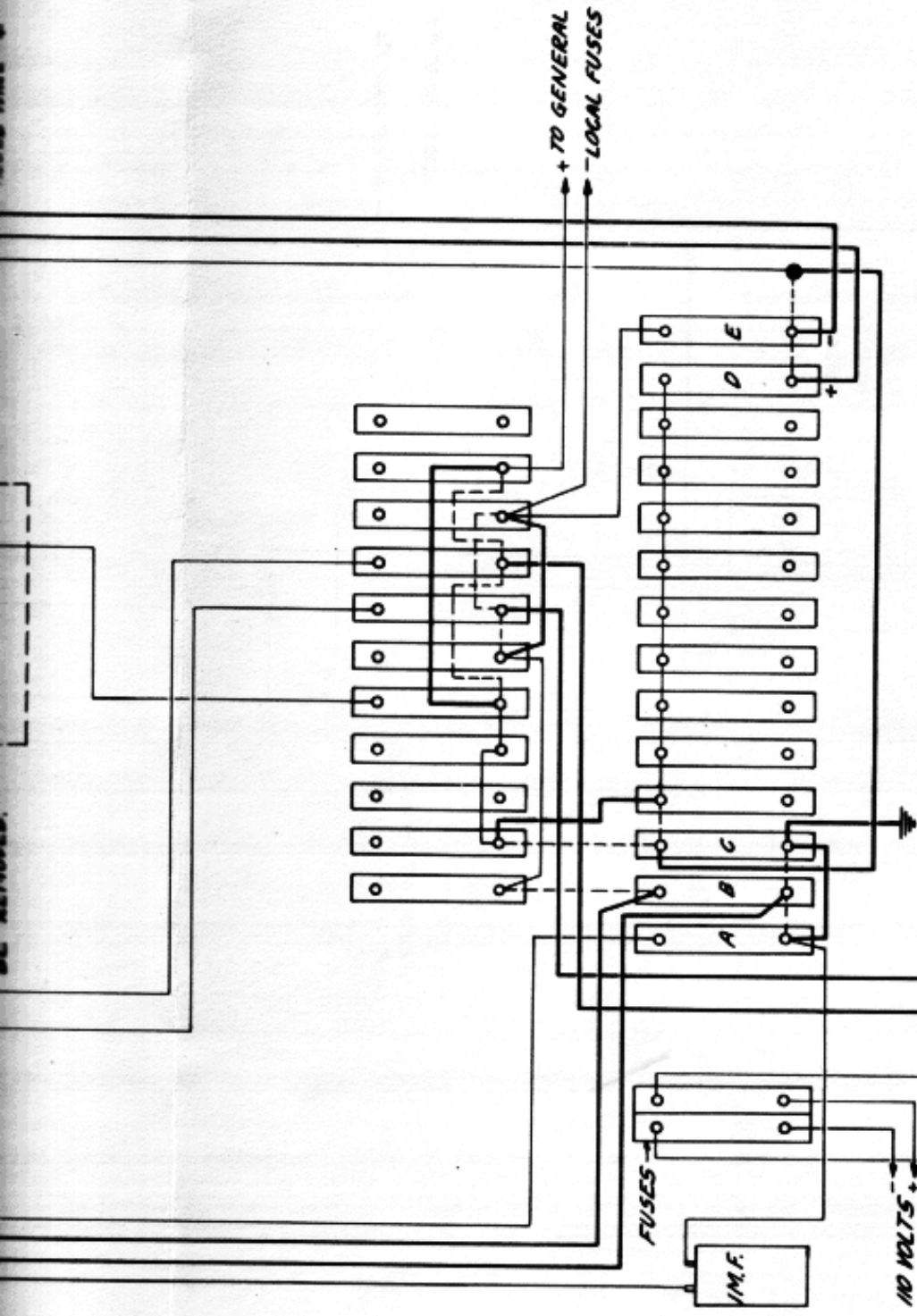
NOTE:
 CUT TABLE TOP
 AS SHOWN IN DOTTED LINES
 FOR MOUNTING TWO #682B
 MOUNTING PLATES AND
 TWO #6827 CONNECTING
 BLOCKS.

TABLE TOP LAYOUT



PANEL BOX LAYOUT

FIGURE 2



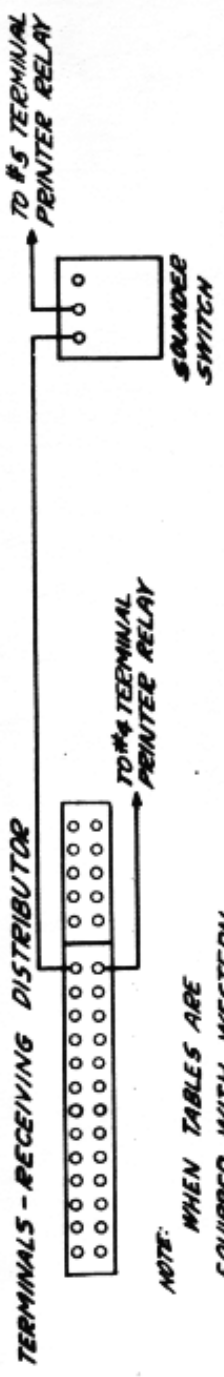
— = PRESENT WIRING - RETAINED. { SEE WIRING DIAGRAM #572
 - - - = PRESENT WIRING - REMOVED. { FOR PRESENT CIRCUITS.
 ····· = NEW WIRES - ADDED. { SEE WIRING DIAGRAM #1201
 ○ = SPLICE. { FOR NEW CIRCUITS.

IN POSITIONS A, B, C, D, E, REPLACE PRESENT RESISTANCES
 AND CHANGE DESIGNATIONS AS FOLLOWS:

- A = 7500 OHMS LINE RELAY.
 - B = 1000 OHMS LINE RELAY TONGUE.
 - C = 4000 OHMS SECONDARY RELAYS.
 - D = 250 OHMS CORRECTOR CONTROL RELAY.
 - E = 250 OHMS CORRECTOR CONTROL RELAY.
- THE 4000 OHMS RESISTANCE REMOVED FROM
 POSITION "A" MAY BE USED IN POSITION "C".

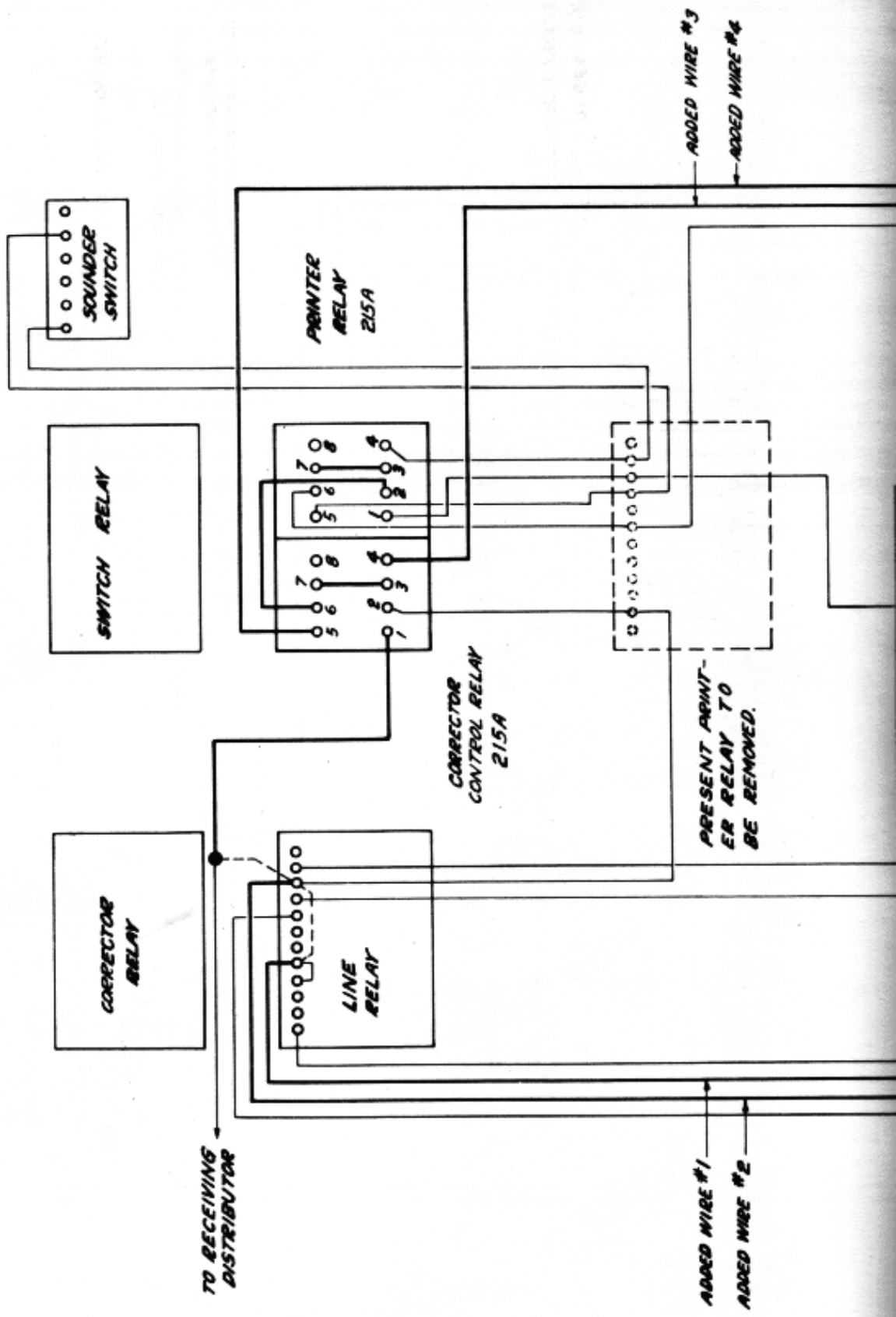
FIGURE 3

1000
 1000
 1000

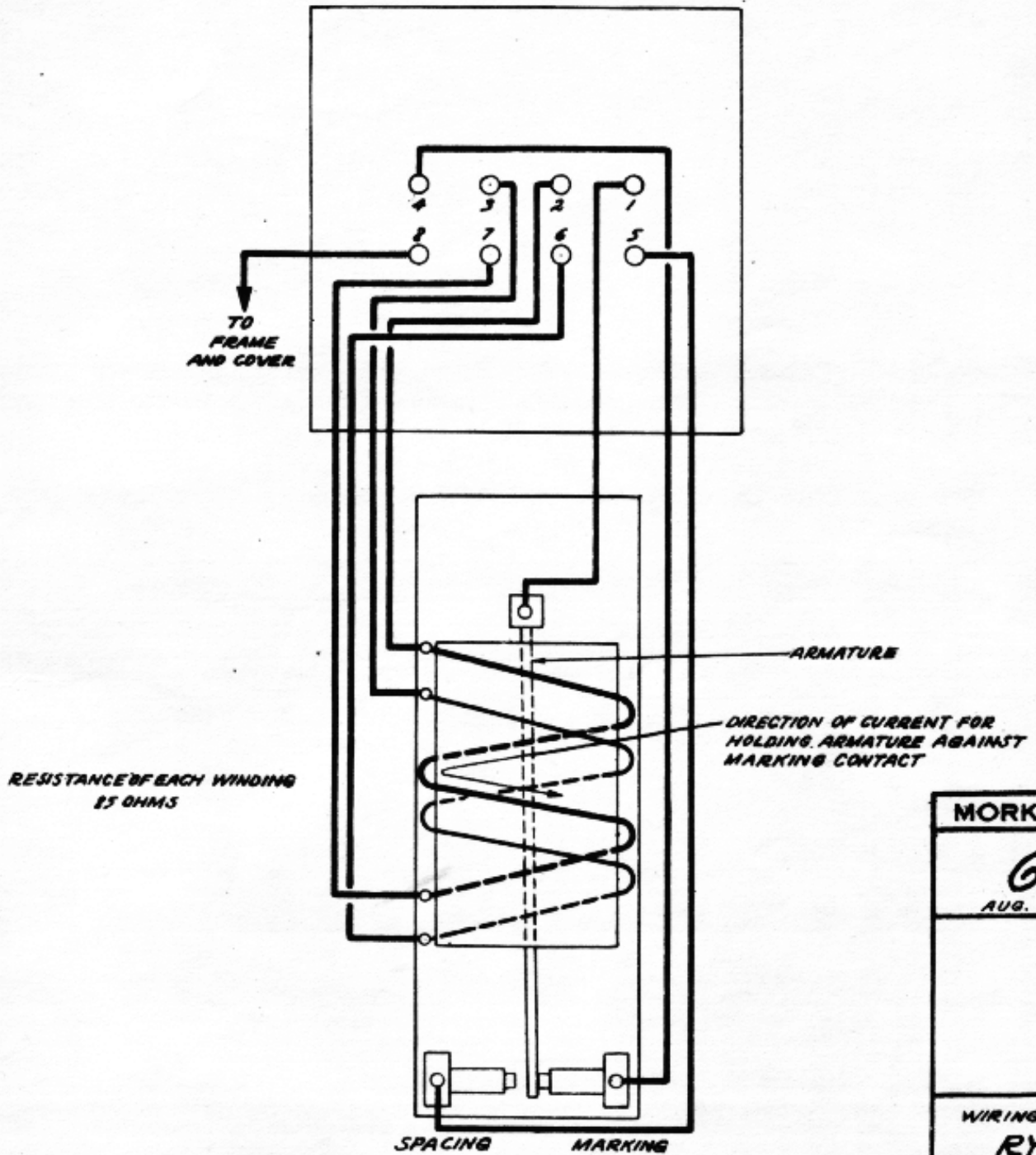


NOTE: WHEN TABLES ARE EQUIPPED WITH WESTERN UNION BALANCING EQUIPMENT THE SOUNDER SWITCH CIRCUIT IS AS SHOWN ABOVE.

SEE WIRING DIAGRAM #862 FOR PRESENT CIRCUITS.
SEE WIRING DIAGRAM #1206 FOR NEW CIRCUITS.



LOOKING AT RELAY FROM TOP



MORCRUM CO.

610

AUG. 1, 1934.

WIRING DIAGRAM

RY20

RELAY

(W.E.CO. 215A)

DRAWN A.D.
TRACED A.D.
CHECKED
ENG'R'D A.S.B.
APPROVED *ASB*